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Manuscript Number:	Ms_BJAST_27242
Title of the Manuscript:	Vegetation Impact on the Morphodynamic Activity of the River Kapuas
Type of the Article	Original Research Article

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments



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	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<u>Compulsory</u> REVISION comments	Materials and Methods • The study area description was needed • The step of image pre-processing was needed- "Figure 1: Methodological flowchart of the investigation of vegetation impact" • Information about the data was needed such as the product (Landsat 5, Landsat 7 and Landsat 8), scenes paths information, season (dry or wet)do you used, • Explain in details the data collection method and the validation process. • Improved the resolution of the Figures and the don t show the legend. • Why only NDVI was selected in this study? Also explain how you solve the problem of confusion of different classes according to season, for example during the dry period we have confusion between grassland and bare area • "Figure 4: Vegetation types and their corresponding increase in NDVI values. Land cover type 1 & 2 showing NDVI values 0.33-0.38; 3 & 4 showing NDVI values 0.40-0.45 and 5 & 6 showing values 0.48 and more" this information in the Methodology, I think is result • Improved the quality of your equation using • All this paragraph was result and not methodology "NDVI values corresponding to vegetation types (Figure 4) clearly show that, with increasing vegetation density and biomass, the NDVI values are increasing.	I have tried my level best to answer comments as much as possible. • The brief description of the study area was given in the Introduction part which started from line no. 55. I have added more information in my revised copy which is coloured. • LC81200602013175, LT51210601995181, LT512006019912111, LT512006020041831, LT51210601994146, LT51200592009,E71200602001, LE711906020011752, LE71206020012302. and more • Data means the images and the videos. Videos were captured at 52 points, near or close to the river or sometimes far from the bank where the bank is inaccessible, using handheld GPS. To determine the NDVI values of the entire Kapuas area for a time series, Landsat images are downloaded from USGS archive (earthexplorer.usgs.gov/). Then the images are geo-referenced and re-sampled to the UTM, Zone 49N coordinate system. NDVI analysis images of Landsat 5 (1991, 1995, 1994 and 2005), Landsat 7 (2001) and Landsat 8 (2013). • Path and Row numbers of the respective year are included in the revised copy. • Equation is now improved but the problem



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	Beyond a certain range, NDVI becomes saturated for higher biomass. Box et al. (1989) suggest a saturation NDVI value of 0.40 and 0.54 was suggested by Santin-Janin et al. (2009) for saturation in case of higher biomass. In this study NDVI values larger than 0.45 are found for the vegetated area with comparatively higher biomass and more than 0.50 shows saturation of the NDVI" - The paper shows only the NDVI map of the upper upstream of Kapuas River 2013 (figure 3) but you suppose to show also for 1991, 1994, 1995, 2005. Make it and show the trends of the NDVI across the time series and its patterns. I think those figure supposed to be in the result Result and discussion - The author reported that "as high NDVI value represents vegetation of high biomass both above and below the ground" but the NDVI can show high value for herbaceous and don't mean high biomass. This need to be check. - The author argued that "and aboveground biomass is positively correlated with the plant biomass below ground" I think is non – linear relationship between biomass and NDVI (sometimes this correlation cannot be statistically significant), it is depends of type of landscape, ecosystem, perturbation, interaction, patterns between soil chemical and physical proprieties and roots of the trees. Also the author reported "about belowground plan biomass", what he want to say??? Roots or other material?? In tropical region many times the dense shrubs can show a high NDVI	is with the .doc and .docx. file. When I save my file as .docx file then the document can't be open in other machine but the equation can be written in well format. If I save as .doc file then the equation can't be written in well format but the document can be open. - The causes of choosing NDVI as a unique tool to identify vegetation impact are explained at the end of the introduction. - The mentioned paragraphs including Figure 4 are included in the RESULTS AND DISCUSSIONS part. - Actually I didn't include those figure in my manuscript because of space issue. Figures will take huge space in my manuscript which will make the volume bigger. - I don't understand how should I show the trends of NDVIs? But to make things easy, I had selected some morphological units and the NDVI values of different random points of different years within the morphological units are shown in tables (Please check the another document named ANNEX) Results and Discussion - It is already explained in my Result and Discussion part which is coloured now. In addition, I have used spectral profile of the vegetation types. In Figure 4 vegetation types 1 to 4 shows spectral profile value 1.2×10^4 unit as they are less matured and having less biomass. But Vegetation type 5 & 6 showing spectral profile value more
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	value and show lower belowground biomass, Explain for this point • The author argued that “The pictures of the vegetation types (Figure 4) with NDVI values confirm that high NDVI values can be considered as high biomass above ground” please replace the word confirm • The author reported that in the methodology and Material session, unsupervised classification was used due to unavailability of training sites and then how Huisman in 2014 got the site? Conclusion • The author argued that “this study concludes that vegetation has significant impact on the morphodynamic activity of the river based on their health, density and biomass both above and below the ground” how you got this significant impact of vegetation on the morphodynamic activity without any statistical test? • Computing the regression analysis between NDVI and biomass of different categories in this study area. For that look appropriate biomass equation for this area and estimate the aboveground biomass. • The NDVI result need to be validated The method and data were not appropriate for this study today.	than 1.2×10^4 because of high biomass and maturity (Foody et al., 2001). • As this study is concerned with the river bank protection that's why biomass below ground will mean the roots. If a plant or a tropical tree has high biomass above the ground it is expected to have comparatively higher root networks below the ground. High root networks will reinforce the soil particle which will give high shear strength of the soil to hold the soil particles in its original position against erosion. • The word “confirm” is now replaced with indicates. • Huisman captured the videos sometimes apart from the target points and sometimes from under the canopy structure. But never from the top of the canopy structure. So without any training sites (or videos captured from the top of the canopy) it would not be wise to classify the landcover using supervised classification system. Conclusion • Sorry I used this word strongly. The word significant is replaced now. • Computing the regression analysis between the NDVI and biomass needs field works which is almost impossible now. • I don't have any idea how should I validate the NDVI values but I have checked with the videos. Shrubs and agricultural field showed NDVI values maximum 0.40 and grassland and bare soil showed below 0.25.
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<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments	I read the paper with interest. Vegetation Impact on the Morphodynamic Activity of the River is a highly relevant environmental research field. The manuscript seems to be correct but the methodology was not decent. Title, Keywords and abstract are appropriate. Structure and length of the manuscript are appropriate... -The Abstract: the detail should not be included in the abstract - The Introduction: did not fully capture the topic. The understanding can be improved by rearranging some paragraphs. -The method: It should be clear how NDVI differ from other vegetation Index. That mean the NDVI should be compared with others index for show the advantages and disadvantages. Therefore many studies have proposed a Vegetation index to descript vegetation cover. In relation to my expertise, on remote sensing (20th century), the use of NDVI is for training purpose not for one manuscript Result: Figures are informative but legend was needed for the figure 2 and 3	• Why I had chosen NDVI for this study it is already explain at the end part of Introduction. • In your previous comment you wrote not to show the legend. For the unsupervised classification it would not be wise to show the legend and it unnecessary also.